

CLAIMS

1. A light-emitting form comprising:
 - an elongated light guide having a first end and a second end; and
 - a light source that sheds light into the first end of the light guide;
 - wherein the light guide further comprises:
 - a tubular light-transmitting container consisting essentially of a substantially amorphous polymer with a first index of refraction, the container having a first open end, a second open end, an inside surface and an outside surface; and
 - an elongated light-transmitting core with a second index of refraction lower than said first index of refraction, the core having a first end and a second end, the core being within the container and optically connected to the inside surface thereof;
 - whereby the light guide exhibits an aura, wherein the outside surface of the container illuminates its surroundings and appears to glow.
2. The light-emitting form of claim 1 further comprising means for sealing the first open end of the light guide and means for sealing the second open end of the light guide, whereby the light guide is adapted to contain a core of liquid.
3. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising a salt solution.
4. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising an oil.
5. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising a water-soluble polymer in solution.
6. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising a polyglycol.
7. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising a solution of a low molecular weight organic compound in organic solvent.
8. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising a solution of a low molecular weight inorganic compound in inorganic solvent.

9. The light-emitting form of claim 2 wherein the core consists essentially of a liquid comprising an oligomer in solution.
10. The light-emitting form of claim 2 wherein the means for sealing the second end of the light guide comprises a solid wall integral with the container.
11. The light-emitting form of claim 9 wherein the means for sealing the first end of the light guide comprises a light source embedded as a plug in the first end of the container.
12. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a cross-linked polymer.
13. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a hydrogel.
14. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a thermoplastic polymer.
15. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a cross-linked polymer.
16. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a thermoset polymer.
17. The light-emitting form of claim 1 wherein the container consists essentially of a solid comprising a halogenated hydrocarbon.
18. The light-emitting form of claim 1 wherein the light guide is substantially cylindrical in shape.
19. The light-emitting form of claim 1 wherein the cross section of the inside surface of the container has a shape different from the cross section of the outside surface of the container.
20. The light-emitting form of claim 1 wherein the light source comprises a plurality of light-emitting elements at the first end of the light guide that shed light into the first end of the light guide.

21. The light-emitting form of claim 1 further comprising a second light source that sheds light into second end of the light guide.

22. The light-emitting form of claim 1 wherein the light source comprises a light-emitting diode.

23. A light-emitting form comprising:

a container consisting essentially of a solid tubular element comprising a substantially amorphous acrylic polymer having a first index of refraction, having an inside surface of about 14 mm diameter, an outside surface of about 17 mm diameter, a first end, and a second solid end;

a core consisting essentially of a liquid comprising poly glycol having a second index of refraction lower than said first index of refraction, the core being within the container and optically connected to the inside surface thereof; and

a light source consisting essentially of a light-emitting diode, sealingly embedded in the first end of the container and optically connected to the core into which it sheds light,

whereby the light-emitting form exhibits an aura, wherein the outside surface of the container illuminates its surroundings and appears to glow.

24. A light-emitting form comprising:

a container consisting essentially of a solid comprising a substantially amorphous polyurethane having a first index of refraction, having an inside surface of about 6.5 mm diameter, an outside surface of about 8 mm diameter, a first solid end, and a second solid end;

a core consisting essentially of a liquid comprising purified oil having a second index of refraction that is lower than said first index of refraction, the core being within the container and optically connected to the inside surface thereof; and

a light source comprising a light-emitting diode sealingly embedded in the first end of the container and optically connected to the core into which it sheds light.

25. The light-emitting form of claim 23 wherein the inside surface of the container has a diameter of about 3 mm and the outside surface of the container has a diameter of about 4 mm.

26. The light-emitting form of claim 1 wherein the inside surface of the container has a diameter of about 3 mm and the outside surface of the container has a diameter of about 4 mm.

27. The light-emitting form of claim 1 wherein the inside surface of the container has a diameter of about 6.5 mm and the outside surface of the container has a diameter of about 8 mm.

28. The light-emitting form of claim 1 wherein the inside surface of the container has a diameter of about 14 mm and the outside surface of the container has a diameter of about 17 mm.
29. The light-emitting form of claim 1 wherein the inside surface of the container has a diameter of about 3 mm and the outside surface of the container has a diameter of about 4mm.
30. The light-emitting form of claim 1 wherein the inside surface of the container has a first diameter and the outside surface of the container has a second diameter wherein the second diameter is from about 5 percent to about 30 percent larger than the first diameter.
31. The light-emitting form of claim 1 wherein the inside surface of the container has a first diameter and the outside surface of the container has a second diameter wherein the second diameter is from about 20 percent to about 25 percent larger than the first diameter.
32. The light-emitting form of claim 1 wherein the container has an index of refraction of about 1.55 and the core has an index of refraction of about 1.45.
33. The light-emitting form of claim 1 wherein the container has a first index of refraction and the core has a second index of refraction wherein the first index of refraction is from about 2 percent to about 15 percent greater than the first index of refraction.
34. A method of making a light-emitting form of claim 1 comprising the steps of purifying and de-airing the liquid core medium, followed by pouring into the container liquid prepolymers or syrupy polymers of a material selected from the group consisting of methyl methacrylates, 2-ethylhexyl methacrylates, styrene, and 2-ethylhexyl acrylate.
35. A method of making a light-emitting form of claim 1 by first combing pre-polymer with appropriate amount of initiator, injecting this mixture into the container followed by curing.
36. A method of making a light-emitting form of claim 1 by first combing pre-polymer of 2-ethylhexyl methacrylate, in very pure form with appropriate initiator and injecting into a suitable cladding (i.e. polyadipate cladding), and further curing at a higher temperature in a water bath, resulting in a satisfactory light-emitting form.
37. A method of making a light-emitting form of claim 1 with a cross-linked core, wherein prepolymer of methyl methacrylate is combined with 0.1 to 1% by weight of diethylene dimethylmethacrylate, as a cross linker, followed by placement in a container of polyadipate.
38. A method of making a light-emitting form of claim 1 wherein core is polymerized in the container,

first mixing n-butyl methacrylate with an initiator under pressure in a closed system, then putting the polymer mass, while kept molten, under negative pressure, for a time sufficient to remove unreacted initiator, monomer and other volatiles, then injecting the molten mass into a polyurethane tubing at high temperature.

39. A method of making a light-emitting form of claim 1 continuously and fully automated by continuously inserting the light-transmitting core into the container tubing as the tubing is being

40. An elongated light guide having a first end and a second end, comprising:

a tubular light-transmitting container consisting essentially of a substantially amorphous polymer with a first index of refraction, the container having a first open end, a second open end, an inside surface and an outside surface; and

an elongated light-transmitting core with a second index of refraction lower than said first index of refraction, the core having a first end and a second end, the core being within the container and optically connected to the inside surface thereof;

whereby the light guide exhibits an aura, wherein the outside surface of the container illuminates its surroundings and appears to glow, when illuminated by light impinging on its first end.

41. The light-emitting form of claim 1 wherein the container has a crystallinity of less than 1 per cent by weight.

42. The light-emitting form of claim 1 wherein the container has a crystallinity of less than 0.1 per cent by weight.